

Attachment 3A

Natural Environment Study

The purpose of the Natural Environment Study (NES) is to provide biological studies and biological-related information necessary for the environmental review process regarding land use decisions. Full disclosure of environmental impacts of proposed projects is required to satisfy legal mandates of various State and Federal statutes. Generally, the NES includes documentation of project area biological resources and an impact assessment of project alternatives on those resources.

PROJECT DESCRIPTION

The proposed project is an amendment to the Water Quality Control Plan for the Colorado River Basin Region (Basin Plan) that will establish the **New River Sedimentation/Siltation Total Maximum Daily Load (TMDL) and Implementation Plan**. A TMDL is the maximum amount of a pollutant that a waterbody can receive while it still meets water quality objectives (narrative or numerical) designed to protect beneficial uses of waterbodies, pursuant to 40 CFR 130.2(d) and CWC 13241.

The Basin Plan states that New River designated beneficial uses include: warm freshwater habitat (WARM); wildlife habitat (WILD); preservation of threatened, rare, and endangered species (RARE); contact- and non-contact water recreation (REC I and REC II); and freshwater replenishment (FRSH) (California Regional Water Quality Control Board 1994). Water quality objectives that apply to sediment (suspended solids, sediment, turbidity) are being violated in the New River. Violation of these objectives indicates impairment of New River designated beneficial uses, and degraded water quality conditions.

The TMDL's purpose is to eliminate the impairments that sediment is causing on the New River's designated beneficial uses, in violation of water quality objectives. Excessive sediment in the water column and in bottom deposits adversely affects aquatic and terrestrial organisms. Sediment also serves as a carrier for DDT, DDT metabolites, and other insoluble pesticides including toxaphene. These deposits and chemicals pose a threat to aquatic and avian communities and people feeding on New River fish. Figure 1 shows a fish die-off in the New River.



Figure 1. Fish Die-Off in the New River

The main source of excess sediment is Imperial Valley farmland, via agricultural drains (Ag Drains) owned and operated by the Imperial Irrigation District (IID). Ag Drain sediment comes from agricultural tailwater and, to a lesser extent, dredging of the drains. (Tailwater is irrigation water that is applied to fields, does not percolate into the soil, exits the lower end of the field, and typically flows into an IID drain tributary to the New River.)

The Amendment will require responsible parties to utilize sediment-control Best Management Practices (BMPs). It also requires the U.S. Section of the International Boundary and Water Commission (IBWC) to submit proposed measures to prevent discharges of wastes from Mexico from violating the TMDL. The proposed time schedule outlined in the TMDL Implementation Plan occurs in four phases with interim numeric targets and corresponding load allocations, and requires full compliance within twelve years. The proposed Basin Plan Amendment:

1. Updates references to the State's Nonpoint Source Pollution Control Program.
2. Includes Regional Nonpoint Source Control Program elements.
3. Deletes dated information that is no longer accurate.
4. Establishes a numeric target of 200 milligrams per liter of total suspended solids for the entire U.S. reach of the New River.
5. Adds a section for this proposed TMDL that:
 - a. Summarizes New River Sedimentation/Siltation TMDL elements, including the Problem Statement, Numeric Target, Source Analysis, Margin of Safety, Seasonal Variations and Critical Conditions, Loading Capacity, and Load Allocations and Wasteload Allocations;
 - b. Establishes interim numeric targets;
 - c. Designates responsible parties and management actions;
 - d. Lists recommended Best Management Practices (BMPs) to control sediment, with estimated implementation costs and financing sources;
 - e. Describes recommended actions for cooperating agencies;
 - f. Describes TMDL compliance monitoring and enforcement activities;
 - g. Describes Regional Board water quality monitoring and implementation tracking activities to assess TMDL implementation;
 - h. Describes public reporting activities; and
 - i. Describes the Regional Board review process.

STUDY METHODOLOGY

Literature Review Methods

Research was done on the wildlife, vegetation, and habitats in and near the New River and its delta area with the Salton Sea. ("New River delta" and "Salton Sea delta" are used interchangeably in this report.) Sources included field guides, research papers, websites, government publications, and a query of the California Natural Diversity Database (California Department of Fish and Game 2002), among others. Information specifically cited within this report is recorded in the "References Cited" section at the end of this Natural Environment Study. Background information not specifically cited within the text is recorded in the "References Relied Upon" section at the end of this Natural Environment Study.

Literature Review Results

The California Department of Fish and Game and U.S. Fish and Wildlife Service designate the status of a species. "Special" is defined here as plants, animals, or natural communities whose populations are of concern, including those that are endangered, threatened, special concern species, and otherwise rare/sensitive. This is consistent with the California Natural Diversity Database, which tracks such species and natural communities (California Department of Fish and Game, January 2001 and July 2001). "Endangered" species are those that have such limited numbers that they are in imminent danger of extinction throughout all or a significant portion of their range. "Threatened" species are those that are likely to become endangered in the foreseeable future. "Special Concern Species" are those that have declining population levels, limited ranges, and/or continuing threats that have made them vulnerable to extinction. (State-listed Special Concern Species that are "Protected" or "Fully Protected" are those that may not be taken or possessed without a state permit. Federally-listed Special Concern Species are no longer tracked by the U.S. Fish and Wildlife Service, and thus are not discussed in this report.) "Rare/Sensitive" species are those that are biologically rare, very restricted in distribution, declining throughout their range, in danger of local extirpation, are closely associated with a rapidly declining habitat, or have a critical, vulnerable stage in their life cycle that warrants monitoring.

Endangered and threatened species have the highest level of protection, then special concern species, then rare/sensitive species. When a species is listed in more than one category in the California Natural Diversity Database (e.g., SSCS and R/S), this Natural Environment Study records only the category offering the highest level of protection.

Table 1 lists the status of specific species and natural communities identified in the literature review as occurring or potentially occurring in the vicinity (i.e., in or near) of the New River and New River delta. Special status species recorded as "accidental" in the literature are not included in this report, as project area habitat generally is not considered suitable for these species. Accidental visitors most likely were blown off-course by extreme inclement weather conditions, and would not otherwise utilize project area habitat.

Table 1. Special Status Species and Natural Communities Occurring or Potentially Occurring in the Vicinity of the New River and New River Delta

COMMON NAME	SCIENTIFIC NAME	STATUS
<u>Wildlife = 88</u>		
Cheeseweed owlfly	<i>Oliarces clara</i>	R/S
Colorado River toad	<i>Bufo alvarius</i>	SSCS-P
Couch's spadefoot	<i>Scaphiopus couchii</i>	SSCS
Lowland leopard frog	<i>Rana yavapaiensis</i>	SSSC-P
Flat-tailed horned lizard	<i>Phrynosoma mcalli</i>	SSCS-P
Colorado Desert fringe-toed lizard	<i>Uma notata notata</i>	SSCS
Desert pupfish	<i>Cyprinodon macularius</i>	SE, FE
Razorback sucker	<i>Xyrauchen texanus</i>	SE, FE
Common loon	<i>Gavia immer</i>	SSCS
American white pelican	<i>Pelecanus erythrorhynchos</i>	SSCS
California brown pelican	<i>Pelecanus occidentalis californicus</i>	SE-FP, FE
Double-crested cormorant	<i>Phalacrocorax auritus</i>	SSCS
American bittern	<i>Botaurus lentiginosus</i>	R/S
Western least bittern	<i>Ixobrychus exilis hesperis</i>	SSCS
Great blue heron	<i>Ardea herodias</i>	R/S
Great egret	<i>Ardea alba</i>	R/S
Snowy egret	<i>Egretta thula</i>	R/S
Black-crowned night heron	<i>Nycticorax nycticorax</i>	R/S
White-faced ibis	<i>Plegadis chihi</i>	SSCS
Wood stork	<i>Mycteria americana</i>	SSCS
Fulvous whistling duck	<i>Dendrocygna bicolor</i>	SSCS
Aleutian Canada goose	<i>Branta canadensis leucopareia</i>	FT
Canvasback	<i>Aythya valisineria</i>	R/S
Osprey	<i>Pandion haliaetus</i>	SSCS
White-tailed kite	<i>Elanus leucurus</i>	SSCS-FP
Bald eagle	<i>Haliaeetus leucocephalus</i>	SE-FP, FT
Golden eagle	<i>Aquila chrysaetos</i>	SSCS-FP
Northern harrier	<i>Circus cyaneus</i>	SSCS
Sharp-shinned hawk	<i>Accipiter striatus</i>	SSCS

COMMON NAME	SCIENTIFIC NAME	STATUS
Cooper's hawk	<i>Accipter cooperi</i>	SSCS
Swainson's hawk	<i>Buteo swainsoni</i>	ST
Ferruginous hawk	<i>Buteo regalis</i>	SSCS
Merlin	<i>Falco columbarius</i>	SSCS
American peregrine falcon	<i>Falco peregrinus anatum</i>	SE-FP
Prairie falcon	<i>Falco mexicanus</i>	SSCS
California black rail	<i>Laterallus jamaicensis coturniculus</i>	ST-FP
Yuma clapper rail	<i>Rallus longirostris yumanesis</i>	ST-FP, FE
Greater sandhill crane	<i>Grus canadensis tabida</i>	ST-FP
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	SSCS
Mountain plover	<i>Charadrius montanus</i>	SSCS
Long-billed curlew	<i>Numenius americanus</i>	SSCS
Laughing gull	<i>Larus atricilla</i>	SSCS
California gull	<i>Larus californicus</i>	SSCS
Van Rossem's gull-billed tern	<i>Sterna nilotica vanrossemi</i>	SSCS
Caspian tern	<i>Sterna caspia</i>	R/S
Forster's tern	<i>Sterna forsteri</i>	R/S
Black tern	<i>Chlidonias niger</i>	SSCS
Black skimmer	<i>Rynchops niger</i>	SSCS
Burrowing owl	<i>Athene cunicularia</i>	SSCS
Long-eared owl	<i>Asio otus</i>	SSCS
Short-eared owl	<i>Asio flammeus</i>	SSCS
Vaux's swift	<i>Chaetura vauxi</i>	SSCS
Rufous hummingbird	<i>Selasphorus rufus</i>	R/S
Gila woodpecker	<i>Melanerpes uropygialis</i>	SE
Olive-sided flycatcher	<i>Contopus borealis</i>	R/S
Willow flycatcher	<i>Empidonix traillii</i>	SE
Vermilion flycatcher	<i>Pyrocephalys rubinus</i>	SSCS
California horned lark	<i>Eremophila alpestris actia</i>	SSCS
Purple martin	<i>Progne subis</i>	SSCS
Bank swallow	<i>Riparia riparia</i>	ST
Black-tailed gnatcatcher	<i>Polioptila melanura</i>	R/S

COMMON NAME	SCIENTIFIC NAME	STATUS
Crissale thrasher	<i>Toxostoma crissale</i>	SSCS
Le Conte's thrasher	<i>Toxostoma lecontei</i>	SSCS
Loggerhead shrike	<i>Lanius ludovicianus</i>	SSCS
Least Bell's vireo	<i>Vireo bellii pusillus</i>	SE, FE
Virginia's warbler	<i>Vermivora virginiae</i>	SSCS
Yellow warbler	<i>Dendroica petechia brewsteri</i>	SSCS
Hermit warbler	<i>Dendroica occidentalis</i>	R/S
Yellow-breasted chat	<i>Icteria virens</i>	SSCS
Summer tanager	<i>Piranga rubra</i>	SSCS
Abert's towhee	<i>Pipilo aberti</i>	R/S
Chipping sparrow	<i>Spizella passerina</i>	R/S
Brewer's sparrow	<i>Spizella breweri</i>	R/S
California gray-headed junco	<i>Junco hyemalis caniceps</i>	SSCS
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	R/S
Lawrence's goldfinch	<i>Carduelis lawrencei</i>	R/S
California leaf-nosed bat	<i>Macrotus californicus</i>	SSCS
Mexican long-tongued bat	<i>Choeronycteris mexicana</i>	SSCS
Spotted bat	<i>Euderma maculatum</i>	SSCS
Pallid bat	<i>Antrozous pallidus</i>	SSCS
Pocketed free-tailed bat	<i>Nyctinomops femorasaccus</i>	SSCS
Big free-tailed bat	<i>Nyctinomops macrotis</i>	SSCS
Townsend's western big-eared bat	<i>Plecotus townsendii townsendii</i>	SSCS
California mastiff bat	<i>Eumops perotis californicus</i>	SSCS
Coachella Valley round-tailed ground squirrel	<i>Spermophilus tereticaudus chlorus</i>	SSCS
Palm Springs pocket mouse	<i>Perognathus longimembris bangsi</i>	SSCS
Colorado Valley woodrat	<i>Neotoma albigula venusta</i>	R/S
American badger	<i>Taxidea taxus</i>	R/S

Plants = 11

Orcutt's woody-aster	<i>Xylorhiza orcuttii</i>	R/S
Harwood's milk-vetch	<i>Astragalus insularis</i> var. <i>harwoodii</i>	R/S
Peirson's milk-vetch	<i>Astragalus magdalenae</i> var. <i>peirsonii</i>	SE, FT

COMMON NAME	SCIENTIFIC NAME	STATUS
Rock nettle	<i>Eucnide rupestris</i>	R/S
Brown turbans	<i>Malperia tenuis</i>	R/S
Hairy stickleaf	<i>Mentzelia hirsutissima</i>	R/S
Chaparral sand-verbena	<i>Abronia villosa</i> var. <i>aurita</i>	R/S
Wiggins' cholla	<i>Opuntia wigginsii</i>	R/S
Giant Spanish-needle	<i>Palafoxia arida</i> var. <i>gigantea</i>	R/S
Thurber's pilostyles	<i>Pilostyles thurberi</i>	R/S
Orocopia sage	<i>Salvia greatae</i>	R/S

Natural Communities = 5

Southern Willow Scrub	not applicable	R/S
Wetlands	not applicable	R/S
Active Desert Dunes	not applicable	R/S
Stabilized and Partially Stabilized Desert Dunes	not applicable	R/S
Desert Fan Palm Oasis Woodland	not applicable	R/S

Legend:

FE = Federal Endangered
 FT = Federal Threatened
 R/S = Rare or Sensitive
 SE = State Endangered
 SE-FP = State Endangered - Fully Protected
 SE-P = State Endangered - Protected
 ST = State Threatened
 ST-FP = State Threatened - Fully Protected
 ST-P = State Threatened - Protected
 SSCS = State Special Concern Species
 SSCS-FP = State Special Concern Species - Fully Protected
 SSCS-P = State Special Concern Species - Protected

ENVIRONMENTAL SETTING

Affected Environment

The area affected by the proposed project is the New River and New River delta area, located in Imperial County in southeastern California. The New River originates in Mexico about 20 river-miles south of the International Boundary between the United States and Mexico, and travels roughly 65 river-miles through the Imperial Valley before it empties into the southeast corner of the Salton Sea, just northeast of the community of Westmorland. The New River is one of two main tributaries of the Salton Sea, California's largest inland surface water body. The New River contributes about 36% of the Salton Sea's annual inflows, and therefore has a major influence on the Sea's water quality. Figure 2 shows a map of the New River and Salton Sea. Figure 3 shows an aerial view of the New River delta at the Salton Sea.

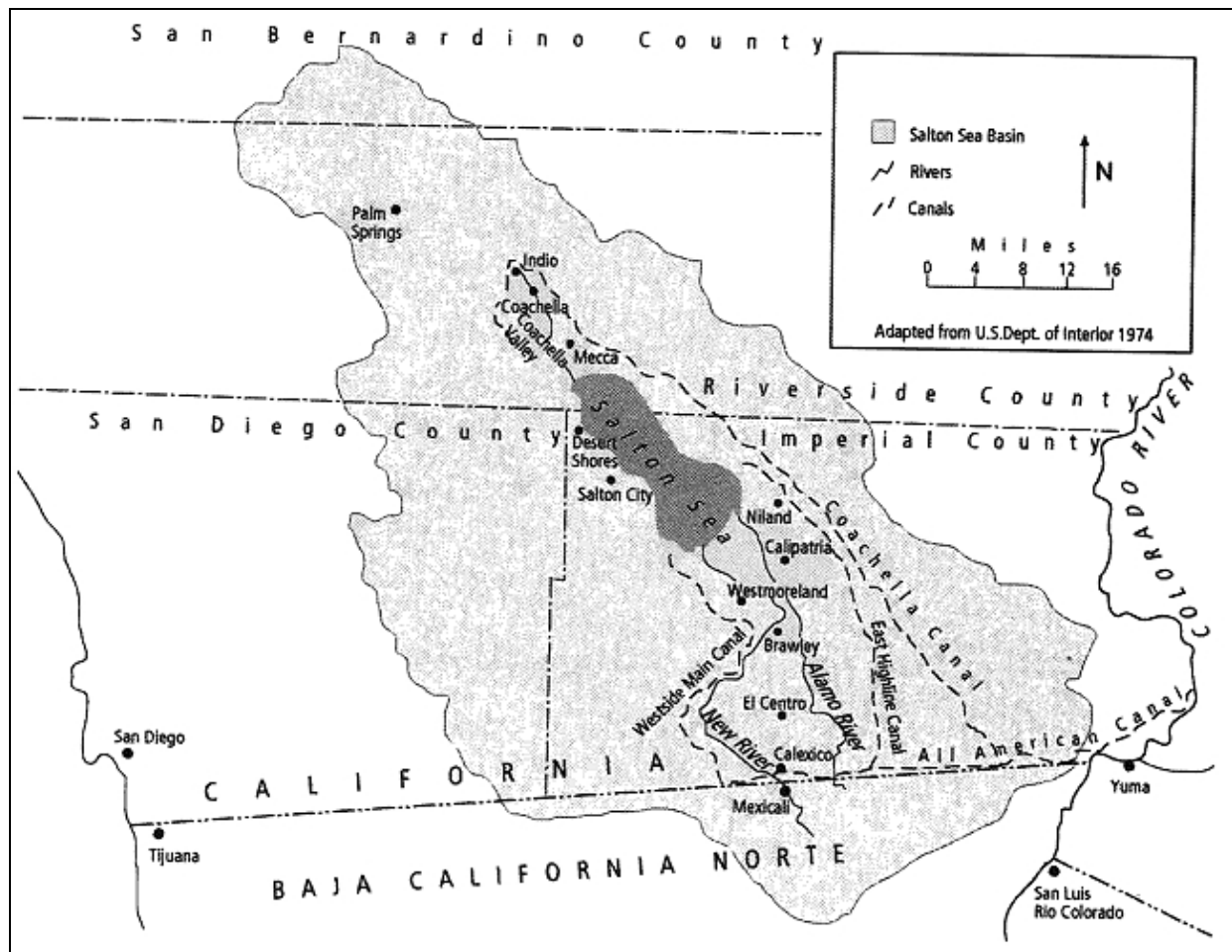


Figure 2. Map of the New River and Salton Sea
(Cohen et al. 1999)



Figure 3. New River Delta, Aerial View

Within the United States, the New River is up to 2/3 mile wide. The New River runs from an elevation of about 30 feet below sea level at the International Boundary to about 227 feet below sea level at the Salton Sea. (The Salton Sea's level fluctuates with agricultural return flow discharges and seasonal evapotranspiration rates). Figure 4 shows a narrow section of the New River channel.



Figure 4. Narrow Section of the New River Channel

Historical Setting

The New River, along with the Salton Sea and Alamo River, formed due to a catastrophic flood event in 1905 when a temporary diversion for irrigation water from the Colorado River to the Imperial Valley failed during flood conditions (Gruenberg 1998). The entire flow of the Colorado River diverted to the Salton Basin. The dike breach was repaired sixteen months later, and the Colorado River then resumed its former course across the International Boundary into the Gulf of California.

Under normal circumstances, the Salton Sea would have dried up like its predecessor, Lake Cahuilla. However, the Sea's accidental creation coincided with agricultural development in the Coachella, Imperial, and Mexicali Valleys. Since then, agricultural return flows and domestic/municipal wastes have sustained the New River, Salton Sea, and Alamo River.

Weather

The New River is located in Imperial Valley, in the Colorado Desert region of the Sonoran Desert. The climate is hot, with dry summers, occasional thunderstorms, and gusty high winds with sandstorms. The area is one of the most arid in the United States, with an average annual rainfall of about three inches and temperatures in excess of 100°F for more than 100 days per year. Average temperature is 54°F in January, and 92°F in July. Imperial Valley evapotranspiration rates can exceed 84 inches per year, and can be one-third inch per day in hot summer months. The frost-free period was greater than 300 days per year for nine of ten years, and greater than 350 days per year for three of ten years (Setmire et al. 1990).

Land Uses

The New River runs through Imperial County, which covers approximately 4,597 square miles (2,942,080 acres) (Imperial County 1998). About 74% of County lands are undeveloped desert and mountain areas, mostly under federal or state ownership. About 17% of County lands are irrigated for agriculture, totaling over 500,000 acres located mostly in Imperial Valley. The Salton Sea covers about 8% of the County. Developed areas (e.g., cities, communities, and support facilities) occupy less than 1% of County land. Table 2 shows Imperial County land use distribution.

Table 2. Imperial County Land Use Distribution

Land Use	Acres	Data Source
Irrigated (Agriculture)		
Imperial Valley	479,327	Imperial Irrigation District 1999
Bard Valley	14,737	Imperial County 1998
Palo Verde	7,428	Imperial County 1998
Developed		
Incorporated	9,274	Imperial County 1998
Unincorporated	8,754	Imperial County 1998
Desert and Mountains		

Federal	1,459,926	Imperial County 1998
State	37,760	Imperial County 1998
Indian	10,910	Imperial County 1998
Private	669,288	Imperial County 1998
Other		
Salton Sea	242,049	Salton Sea Authority and USBR 2000

Imperial Valley contains over 480,000 acres of irrigated land in production. Major Valley crops are alfalfa, wheat, sudan grass, and sugar beets, based on amount of land in production (Imperial County Agricultural Commissioner 1995-2001). IID distributed 2.6 to 3.2 million AFY of irrigation water from the Colorado River from 1964 through 1998.

Imperial County has an agricultural-based economy, and is California's tenth-ranked agricultural county, producing over \$1 billion dollars annually (California Department of Food and Agriculture 1998). One in three Imperial Valley jobs is agriculture-related (Imperial Irrigation District 1998). For every \$1,000 of total gross value produced in the agriculture sector, \$345 of personal income is generated from agriculturally-related jobs (Imperial County Agricultural Commissioner 2001).

Surface (gravity) irrigation is the dominant irrigation method in Imperial Valley. Two types of surface irrigation are practiced: (a) furrow irrigation, which involves flowing water down small V-shaped channels, and (b) border irrigation (also known as flood irrigation), which involves flowing a sheet of water across a field. For both methods, water is delivered to a field's head canal via the All-American Canal and a series of delivery canals. Then, a ditch with sliding gates conveys irrigation water via gravity into small basins at the field's top end (head end).

In furrow irrigation, water then is discharged from these basins into small channels called furrows (Figure 5), using siphon tubes or spiles. (Spiles are small pipes installed in the banks of basins, one per irrigated furrow.) Discharge through spiles frequently is controlled using a small wooden stake that slides across the spile opening. Water infiltrates the soil from the bottom and sides of furrows, and moves downward and laterally. Furrow irrigation is suitable to crops that are subject to injury if water covers their crowns or stems, such as vegetables, cotton, corn, sugar beets, potatoes, and seeds.

In border irrigation, siphon tubes or spiles then discharge water from these basins directly into border strips (i.e., areas between two small earthen berm borders) or indirectly through temporary small ponds installed between water inlets and border strips. The border strip may measure 10 to 100 feet wide and 300 to 2,600 feet long. Border irrigation is suitable to crops that are not sensitive to wet soils around their stems, such as alfalfa, sudan grass, and maize.



Figure 5. Furrow Irrigation in the Imperial Valley

Ecological Setting

The New River provides important habitat for many kinds of wildlife. The New River and tributary Ag Drains have similar physical (hydrologic and geologic) and chemical (water and sediment) properties, and therefore provide similar habitat for wildlife species. This habitat supports a substantially different ecosystem than that of the Salton Sea. Birds are the most diverse wildlife group using the New River and its tributary Ag Drains, as indicated by their abundance and species richness. Fish provide sustenance and recreational benefits to New River users, as well as food for numerous bird species.

Intricate food webs incorporate many terrestrial and aquatic elements, including plants, invertebrates, fish, mammals, reptiles, amphibians, and birds. Organisms at the food web base are consumed by organisms at the next highest trophic level. These organisms then are consumed by the next highest trophic level, and so on until the top of the food web is reached.

The base of the food web includes plankton, detritus, and aquatic vegetation. These organisms are consumed by aquatic invertebrates such as snails, waterboatmen, and insect larvae. Aquatic invertebrates are consumed by crayfish, Asiatic river clams, and fish. (Some fish also may consume plankton directly.) Fish present in the New River and tributary Ag Drains include the desert pupfish, mosquito fish, carp, longjaw mudsucker, red shiner, sailfin mollie, largemouth bass, catfish, and tilapia (U.S. Fish and Wildlife Service 1997b, State Water Resources Control Board 1978-1995).

Turtles and birds are at the top of the local food web. Turtles, such as the spiny softshell turtle, prey on desert pupfish and aquatic invertebrates including Asiatic river clams. Many bird species feed on crayfish, clams, other aquatic invertebrates, fish, and aquatic vegetation. These birds include the ruddy duck, American coot, northern shoveler, cattle

egret, and Yuma clapper rail, among others. Generally, waterfowl and shorebirds are seen where the New River meets the Salton Sea. Figure 6 illustrates a part of the Imperial Valley ecosystem, as a flock of white-faced ibis flies above an alfalfa field on its way to the Salton Sea.



Figure 6. A Flock of White-Faced Ibis Above an Alfalfa Field in the Imperial Valley

New River riparian corridors provide important habitat for songbirds, which are the most common species using the New River and its tributary Ag Drains. Red-winged blackbirds, yellow-rumped warblers, and savannah sparrows are common. These riparian corridors are potential wildlife movement corridors and constitute sensitive habitat. The dominant plant species along these corridors is tamarisk (also known as salt cedar), an introduced species that has suffocated native vegetation. Other plant species include reeds, cattails, and arrowheads (Montgomery Consulting Engineers Inc. 1987). Figure 7 shows riparian habitat along the New River.



Figure 7. Riparian Habitat Along the New River

Many species move freely between the New River and its tributary Ag Drains. Fish and

wildlife use Ag Drains as alternative habitat because 97% of California wetlands have been converted to other uses or otherwise degraded (Bennett 1998). Ag Drains are inhabited by at least thirteen fish species (Imperial Irrigation District 1994). The state and federally endangered desert pupfish was found in 24 of 29 Ag Drains sampled by the California Department of Fish and Game in 1994 (Keeney 2000). All 24 of these drains emptied directly into the Salton Sea. Ag Drain banks also are used, for foraging and shelter by reptiles, insects, and birds (U.S. Fish and Wildlife Service 1997b). The burrowing owl, a state special concern species, nests in Ag Drain banks.

The New River delta, as part of the Salton Sea, is a critical stop for migrating birds on the ecologically important Pacific Flyway, a major migratory route connecting Canada and the U.S. to Mexico and Central America. Millions of birds, representing more than 350 species, winter at the Sea in one of the few remaining wetland environments along the Pacific Flyway (U.S. Fish and Wildlife Service 1997b). Salton Sea bird communities represent a significant proportion of the breeding populations of many species (Salton Sea Authority and U.S. Bureau of Reclamation 2000).

The delta area supports federal and state refuges. The Salton Sea National Wildlife Refuge and the Wister Wildlife Management Unit are located at the southern end of the Salton Sea, where the New River and Alamo River form the Sea's delta. The federally-administered Salton Sea National Wildlife Refuge was established in 1930 to preserve wintering habitat for migratory birds, and to provide forage areas to limit crop damage caused by migratory and resident birds. The state-administered Wister Wildlife Management Unit was established in the 1950s as a way station for migratory waterfowl. Both refuges contain state and federally endangered and threatened species.

The New River delta and Salton Sea ecosystem is vastly different from that of the New River itself and its tributary Ag Drains, despite the Sea receiving agricultural discharges and other relatively freshwater flows from the New River. This is due to physical and chemical differences, the most important being the Sea's high salinity level. Species that reside at the Sea and delta area are generally much more salt tolerant than species residing within the drainage network. The delta serves as a transition zone, where fresh and salt water intermix to form brackish water.

The New River delta food web involves sediment-dwelling (bottom) invertebrates and aquatic plants that are consumed by fish. Higher trophic levels are represented by water birds, whose primary food sources include fish and aquatic invertebrates in the Sea itself. Other food sources for birds are found along shorelines and in adjacent fresh/brackish water wetlands and agricultural drainage systems, and include aquatic plants, terrestrial invertebrates, amphibians, and reptiles. Common water bird species include the eared grebe, black-necked stilt, American avocet, and ring-billed gull. Catastrophic die-offs of birds and fish since 1992 indicate the Sea is impaired by a number of pollutants.

Habitats

Available habitat is intricately associated with wildlife diversity and abundance. Environmental impacts to habitat have direct impacts on the wildlife dependent upon that particular habitat.

Habitat disturbance due to frequent dredging has resulted in the limited distribution of native vegetation throughout the New River and delta area.

A brief description of habitats at the New River and New River delta follows below. These habitats include tamarisk scrub, freshwater marsh, southern willow scrub, cismontane alkali marsh, mudflats, and open water.

Tamarisk scrub is one of the most common habitats in the project area. This habitat consists mainly of introduced *Tamarix* species. These non-native shrubs replace native vegetation, especially in riparian areas, and reduce water available for wildlife.

Freshwater marsh is one of the most common habitats in the project area. This habitat occurs mainly along unlined agricultural canals draining to the Salton Sea. These marshes are dominated by non-native species such as common reed (*Phragmites australis*), cattail (*Typha* spp.), golden dock (*Rumex maritimus*), and rabbitfoot grass (*Polypogon monspeliensis*) (Tetra Tech Inc. 1999). Freshwater marsh is a special status natural community (called “wetland” in this report).

Southern willow scrub communities are characterized by dense riparian thickets dominated by various *Salix* species that are associated with scattered emergent *Populus fremontii* and *Platanus racemosa* (California Department of Fish and Game 1986). Southern willow scrub once was more widespread, but is now reduced due to urbanization, flood control, and alterations to stream drainages. Southern willow scrub is a special status natural community.

Cismontane alkali marsh is associated with the Salton Sea and Salton Sea delta. These marshes are low-lying areas characterized by standing water or saturated soil subject to low inputs of fresh water and high evaporation rates (California Department of Fish and Game 1986). This salty, alkaline environment supports several varieties of plants, including a thick cover of salt grass (*Distichlis spicata*) and emergent aquatic vegetation, such as cattails (*Typha* spp.) and alkali bulrush (*Scirpus robustus*) (Tetra Tech Inc. 1999). Cismontane alkali marsh is a special status natural community (called “wetland” in this report).

Mudflats are free of vegetation, and are periodically flooded and then exposed. They occur in beach areas at the Salton Sea delta.

Open water occurs in the New River and Salton Sea. This habitat is the portion that is always flooded, and may support submerged or emergent vegetation. Algae make up the primary plant community in the Salton Sea.

The project area is adjacent to land that contains other habitats utilized by wildlife. These other habitats include agricultural land, cave/mine/cliff crevices, fine sand, and non-riparian brushy areas. Though not considered natural habitat, houses and residential areas also are used by wildlife, as buildings and planted trees/shrubs provide food and cover.

List of Occurring Plants

Table 3 lists plant species that occur along the New River and in the New River delta area. This list is not complete, but rather, is representative of plants in the area.

Table 3. Representative List of Plant Species in the Vicinity of the New River and New River Delta

Common Name	Scientific Name	Special Status
Chamise	<i>Adenostoma fasciculatum</i>	
Western ragweed	<i>Ambrosia psilostachya</i>	
Fiddleneck	<i>Amsinckia intermedia</i>	
Wild celery	<i>Apiastrum angustifolium</i>	
Mugwort	<i>Artemisa douglasiana</i>	
Giant reed	<i>Arundo donax</i>	
Quail bush	<i>Atriplex canescens</i>	
Slender wild oat	<i>Avena barbata</i>	
Black mustard	<i>Brassica nigra</i>	
Foxtail chess	<i>Bromus madritensis</i>	
Brome	<i>Bromus rubens</i>	
Sedge	<i>Carex barbarae</i>	
Yellow-star thistle	<i>Centaurea solstitialis</i>	
Bull thistle	<i>Cirsium vulgare</i>	
Poison hemlock	<i>Conium maculatum</i>	
Common horseweed	<i>Conyza canadensis</i>	
Cardoon	<i>Cynara cardunculus</i>	
Jimsonweed	<i>Datura wrightii</i>	
Salt grass	<i>Distichlis spicata</i>	
Doveweed	<i>Eremocarpus setigerus</i>	
Long-beaked filaree	<i>Erodium botrys</i>	
Red-stemmed filaree	<i>Erodium cicutarium</i>	
Western sunflower	<i>Helianthus annuus</i>	
Cow parsnip	<i>Heracleum sphondylium</i>	
Telegraph weed	<i>Heterotheca grandiflora</i>	
Prickly lettuce	<i>Lactuca serriola</i>	
Alfalfa	<i>Medicago sativa</i>	
Common reed	<i>Phragmites australis</i>	
Bristly ox-tongue	<i>Picris echioides</i>	
Arrowweed	<i>Pluchea sericea</i>	
Cottonwood	<i>Populus fremontii</i>	
Rabbitfoot grass	<i>Polypogon monspeliensis</i>	
Wild radish	<i>Raphanus sativus</i>	
Castor bean	<i>Ricinus communis</i>	
Golden dock	<i>Rumex maritimus</i>	
Willow	<i>Salix hindsiana</i>	
Russian thistle	<i>Salsola tragus</i>	
Brazilian pepper tree	<i>Schinus terebenthifolius</i>	
Alkali bulrush	<i>Scirpus robustus</i>	
Tamarisk	<i>Tamarix spp.</i>	
Poison oak	<i>Toxicodendron diversilobum</i>	
Cattail	<i>Typha latifolia</i>	
Stinging nettle	<i>Urtica holosericea</i>	

IMPACT TO BIOLOGICAL RESOURCES

Impact Assessment

The New River and delta area contain important biological resources, including special status wildlife, plants, and natural communities. Over one-hundred special status species and natural communities, including fifteen endangered and/or threatened species, were identified in the literature review as occurring or potentially occurring in the project vicinity (Table 1). However, some of these species do not occur due to a lack of suitable habitat (e.g., fine sand) on-site, and thus will not be impacted by the project. Other species have a low potential for occurring on-site, and thus a low potential for being impacted by the project. Many species that do occur on-site are associated with the Salton Sea delta area (U.S. Fish and Wildlife Service 1997a).

Table 4 presents information for the New River and New River delta area regarding special species' natural history, including habitat (nesting, roosting, and/or foraging) and local presence (regardless of abundance), and potential for being impacted by the project. The impact assessment is based on species sensitivity to project impacts, species' natural history requirements, site proximity to known occurrences, species' range, seasonal abundance, consultation with local resource managers, and professional experience.

Table 4. Special Species and Natural Communities—Natural History and Impact Assessment

Species	Scientific Name	Habitat	Local Presence	Potential for Being Impacted
Wildlife = 88				
Cheeseweed owlfly	<i>Oliarces clara</i>	Riparian	Sp	None
Colorado River toad	<i>Bufo alvarius</i>	Riparian, Ag	Y	None
Couch's spadefoot	<i>Scaphiopus couchii</i>	Scrub	Y	None
Lowland leopard frog	<i>Rana yavapaiensis</i>	Open Water	Y	None
Flat-tailed horned lizard	<i>Phrynosoma mcalli</i>	Sand	Sp, S, F	None
Colorado Desert fringe-toed lizard	<i>Uma notata notata</i>	Sand	Y	None
Desert pupfish	<i>Cyprinodon macularius</i>	Open Water	Y	None
Razorback sucker	<i>Xyrauchen texanus</i>	Open Water	Y	None
Common loon	<i>Gavia immer</i>	Open Water	Sp, F	None
American white pelican	<i>Pelecanus erythrorhynchos</i>	Open Water, Mudflat	Y	Low
California brown pelican	<i>Pelecanus occidentalis californicus</i>	Open Water, Mudflat	Y	Low
Double-crested cormorant	<i>Phalacrocorax auritus</i>	Open Water	Y	None
American bittern	<i>Botaurus lentiginosus</i>	Wetland	Y	Low
Western least bittern	<i>Ixobrychus exilis hesperis</i>	Wetland	Y	Low
Great blue heron	<i>Ardea herodias</i>	Mudflat, Wetland	Y	Low

Species	Scientific Name	Habitat	Local Presence	Potential for Being Impacted
Great egret	<i>Ardea alba</i>	Mudflat, Wetland	Y	Low
Snowy egret	<i>Egretta thula</i>	Mudflat, Wetland	Y	Low
Black-crowned night heron	<i>Nycticorax nycticorax</i>	Wetland	Y	Low
White-faced ibis	<i>Plegadis chihi</i>	Wetland, Ag	Y	Low
Wood stork	<i>Mycteria americana</i>	Mudflat, Wetland	S, F	Low
Fulvous whistling duck	<i>Dendrocygna bicolor</i>	Wetland	Sp, S, F	Low
Aleutian Canada goose	<i>Branta canadensis leucopareia</i>	Ag, Wetland	F, W	Low
Canvasback	<i>Aythya valisineria</i>	Open Water	Y	None
Osprey	<i>Pandion haliaetus</i>	Riparian, Open Water	Y	None
White-tailed kite	<i>Elanus leucurus</i>	Wetland, Ag	Y	Low
Bald eagle	<i>Haliaeetus leucocephalus</i>	Mudflat, Open Water	W	Low
Golden eagle	<i>Aquila chrysaetos</i>	Ag, Scrub, Aerial	Y	None
Northern harrier	<i>Circus cyaneus</i>	Ag, Wetland	Y	Low
Sharp-shinned hawk	<i>Accipiter striatus</i>	Riparian, Scrub	Sp, F, W	None
Cooper's hawk	<i>Accipiter cooperi</i>	Riparian, Scrub	Sp, F, W	None
Swainson's hawk	<i>Buteo swainsoni</i>	Ag	S, W	None
Ferruginous hawk	<i>Buteo regalis</i>	Ag	F, W	None
Merlin	<i>Falco columbarius</i>	Ag	F, W	None
American peregrine falcon	<i>Falco peregrinus anatum</i>	Wetland	Y	Low
Prairie falcon	<i>Falco mexicanus</i>	Ag	Y	None
California black rail	<i>Laterallus jamaicensis coturniculus</i>	Wetland	Y	Low
Yuma clapper rail	<i>Rallus longirostris yumanesis</i>	Wetland	Y	Low
Greater sandhill crane	<i>Grus canadensis tabida</i>	Ag	F, W	None
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	Mudflat	Y	Low
Mountain plover	<i>Charadrius montanus</i>	Ag	Sp, F, W	None
Long-billed curlew	<i>Numenius americanus</i>	Wetland, Ag	Y	Low
Laughing gull	<i>Larus atricilla</i>	Open Water, Mudflat	Y	Low
California gull	<i>Larus californicus</i>	Open Water, Mudflat, Ag	Y	Low
Van Rossem's gull-billed tern	<i>Sterna nilotica vanrossemei</i>	Mudflat, Ag	Sp, S, F	Low
Caspian tern	<i>Sterna caspia</i>	Open Water, Mudflat	Y	Low

Species	Scientific Name	Habitat	Local Presence	Potential for Being Impacted
Forster's tern	<i>Sterna forsteri</i>	Open Water, Mudflat	Y	Low
Black tern	<i>Chlidonias niger</i>	Mudflat, Ag	Sp, S, F	Low
Black skimmer	<i>Rynchops niger</i>	Mudflat	Sp, S, F	Low
Burrowing owl	<i>Athene cunicularia</i>	Ag	Y	None
Long-eared owl	<i>Asio otus</i>	Riparian	W	None
Short-eared owl	<i>Asio flammeus</i>	Ag	F, W	None
Vaux's swift	<i>Chaetura vauxi</i>	Aerial	Sp, F	None
Rufous hummingbird	<i>Selasphorus rufus</i>	Houses, Scrub	Sp, S, F	None
Gila woodpecker	<i>Melanerpes uropygialis</i>	Houses, Scrub	Y	None
Olive-sided flycatcher	<i>Contopus borealis</i>	Houses, Scrub	Sp, F	None
Willow flycatcher	<i>Empidonax traillii</i>	Houses, Scrub	Sp, F	None
Vermilion flycatcher	<i>Pyrocephalus rubinus</i>	Houses, Riparian	Y	None
California horned lark	<i>Eremophila alpestris actia</i>	Ag	Y	None
Purple martin	<i>Progne subis</i>	Aerial, Riparian	Sp, F	None
Bank swallow	<i>Riparia riparia</i>	Aerial, Ag	Sp, S, F	None
Black-tailed gnatcatcher	<i>Polioptila melanura</i>	Scrub	Y	None
Crissal thrasher	<i>Toxostoma crissale</i>	Scrub, Riparian	Y	None
Le Conte's thrasher	<i>Toxostoma lecontei</i>	Scrub	Y	None
Loggerhead shrike	<i>Lanius ludovicianus</i>	Scrub, Ag	Y	None
Least Bell's vireo	<i>Vireo bellii pusillus</i>	Riparian	Sp, S	None
Virginia's warbler	<i>Vermivora virginiae</i>	Scrub	F	None
Yellow warbler	<i>Dendroica petechia brewsteri</i>	Riparian, Houses	Sp, F, W	None
Hermit warbler	<i>Dendroica occidentalis</i>	Scrub, Houses	Sp, F	None
Yellow-breasted chat	<i>Icteria virens</i>	Riparian	Sp, S, F	None
Summer tanager	<i>Piranga rubra</i>	Houses	F	None
Abert's towhee	<i>Pipilo aberti</i>	Scrub	Y	None
Chipping sparrow	<i>Spizella passerina</i>	Houses	Sp, F, W	None
Brewer's sparrow	<i>Spizella breweri</i>	Ag, Scrub	Sp, F, W	None
California gray-headed junco	<i>Junco hyemalis caniceps</i>	Scrub, Ag	Sp, F, W	None
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	Wetland, Ag	Y	Low
Lawrence's goldfinch	<i>Carduelis lawrencei</i>	Scrub	Sp, F, W	None
California leaf-nosed bat	<i>Macrotus californicus</i>	Aerial, Cave/Cliff, Scrub, Ag	Y	None
Mexican long-tongued bat	<i>Choeronycteris mexicana</i>	Aerial, Cave/Cliff, Scrub	Sp, S, F	None

Species	Scientific Name	Habitat	Local Presence	Potential for Being Impacted
Spotted bat	<i>Euderma maculatum</i>	Aerial, Cave/Cliff, Scrub, Ag	Y	None
Pallid bat	<i>Antrozous pallidus</i>	Aerial, Cave/Cliff, Scrub, Ag	Y	None
Pocketed free-tailed bat	<i>Nyctinomops femorasaccus</i>	Aerial, Scrub, Riparian	Y	None
Big free-tailed bat	<i>Nyctinomops macrotis</i>	Aerial, Cave/Cliff, Open Water	Y	None
Townsend's western big-eared bat	<i>Plecotus townsendii townsendii</i>	Aerial, Cave/Cliff, Scrub, Ag	Y	None
California mastiff bat	<i>Eumops perotis californicus</i>	Aerial, Cave, Scrub, Ag	Y	None
Coachella Valley round-tailed ground squirrel	<i>Spermophilus tereticaudus chlorus</i>	Scrub	Y	None
Palm Springs pocket mouse	<i>Perognathus longimembris bangsi</i>	Scrub	Sp, S, F	None
Colorado Valley woodrat	<i>Neotoma albigula venusta</i>	Scrub	Y	None
American badger	<i>Taxidea taxus</i>	Scrub	Y	None
Plants = 11				
Orcutt's woody-aster	<i>Xylorhiza orcuttii</i>	Scrub	Y	None
Harwood's milk-vetch	<i>Astragalus insularis</i> var. <i>harwoodii</i>	Sand	Y	None
Peirson's milk-vetch	<i>Astragalus magdalenae</i> var. <i>peirsonii</i>	Sand	Y	None
Rock nettle	<i>Eucnide rupestris</i>	Scrub	Y	None
Brown turbans	<i>Malperia tenuis</i>	Scrub	Y	None
Hairy stickleaf	<i>Mentzelia hirsutissima</i>	Scrub	Y	None
Chaparral sand-verbena	<i>Abronia villosa</i> var. <i>aurita</i>	Scrub	Y	None
Wiggins' cholla	<i>Opuntia wigginsii</i>	Scrub	Y	None
Giant Spanish-needle	<i>Palafoxia arida</i> var. <i>gigantea</i>	Scrub	Y	None
Thurber's pilostyles	<i>Pilostyles thurberi</i>	Scrub	Y	None
Orocopia sage	<i>Salvia greatae</i>	Scrub	Y	None
Natural Communities = 5				
Southern Willow Scrub	not applicable	not applicable	not applicable	Low
Wetlands	not applicable	not applicable	not applicable	Low

Species	Scientific Name	Habitat	Local Presence	Potential for Being Impacted
Active Desert Dunes	not applicable	not applicable	not applicable	None
Stabilized and Partially Stabilized Desert Dunes	not applicable	not applicable	not applicable	None
Desert Fan Palm Oasis Woodland	not applicable	not applicable	not applicable	None

Legend:

Habitat:

- Aerial = strong flying species most often seen in the air
- Ag = agricultural land
- Cave/Cliff = cave, mine, cliff crevices
- Houses = houses and residential areas (buildings and planted trees/bushes provide wildlife cover and food)
- Mudflat = mudflat / beach
- Open Water = open water areas (e.g., Salton Sea and New River)
- Riparian = shrubby vegetation (e.g., willow, tamarisk) along waterways
- Sand = fine sand
- Scrub = non-riparian brushy areas (e.g., various desert scrub communities)
- Wetland = emergent wetlands, marsh, alkali marsh

Local Presence:

- Sp = Spring (about April through May)
- S = Summer (about June through August)
- F = Fall (about September through October)
- W = Winter (about November through March)
- Y = Year-round (resident, or visitors throughout the year)

Special Status Wildlife

The project impact of most concern regarding wildlife is decreased sedimentation/siltation in mudflat and wetland habitats. The proposed TMDL is estimated to result in about a 34 percent reduction in sedimentation/siltation (i.e., annual mean suspended solids concentration) to the New River at its outlet with the Salton Sea, where concentrations are the highest. This 34 percent reduction would result in the same reduction in deposition to the Salton Sea delta.

IID removes sediment deposited by the New River to maintain a stable water surface elevation, prevent bank erosion, and prevent upstream flood damage to adjacent agricultural lands. Currently, IID dredges the New River outlet on an as-needed basis, approximately once every four to five years, from the outlet at the confluence of the New River with the Salton Sea to one-half mile upstream of the outlet, the area we describe as the Salton Sea delta. (IID does not dredge on the Sea side of the outlet, the area they describe as the Salton Sea delta). Such operations occur only during the non-breeding season for the Yuma clapper rail (October through December), and remove approximately 21,111 tons of sediment.

This current level of dredging, coupled with silt reduction resulting from this project, will result in the loss of valuable habitat utilized by some special status species in the Salton Sea delta area. However, the proposed project seeks to return sediment/silt levels to a more natural level, as current levels are in violation of water quality standards. When the New River and delta ecosystem is returned to a more healthy state, wildlife populations ultimately will be healthier.

and more sustainable. Impacts from implementing this silt reduction TMDL can be reduced substantially through mitigation measures. (See “Mitigation Measures” at the end of this report.)

Nearly ninety special status wildlife species, including fourteen threatened and/or endangered species, were identified in the literature review as occurring or potentially occurring in the project vicinity (Table 1). However, some of these species do not occur on-site due to a lack of suitable habitat (e.g., fine sand), and thus will not be impacted by the project (Table 4).

This paragraph discusses the threatened and endangered species potentially occurring in the project vicinity (Table 1), and the impact that the project will have upon those species (Table 4). The Yuma clapper rail, California black rail, American peregrine falcon, and Aleutian Canada goose utilize wetland areas at the Salton Sea delta, and have a low potential for being impacted by the project, as reduced sedimentation/siltation will affect wetland areas. The California brown pelican and Bald eagle occur in mudflats and open water of the Salton Sea, and have a low potential for being impacted by the project, as reduced sedimentation/siltation will affect mudflat areas. The Willow flycatcher, Least Bell’s Vireo, Greater sandhill crane, Bank swallow, Swainson’s hawk, and Gila woodpecker are found in habitats not affected by reduced sedimentation/siltation (e.g., residential areas, desert scrub communities, riparian thickets, agricultural land), and thus will not be impacted by the project. The Desert pupfish occupies open water of the delta area and some agricultural drains (California Department of Fish and Game 1991, Salton Sea Authority 1999), and will not be impacted by the project, as this species will benefit from reduced sedimentation/siltation. The Razorback sucker occurs in open water habitat (the species is adapted for swimming in swift currents but also uses quiet waters), and will not be impacted by the project, as this species will benefit from reduced sedimentation/siltation.

Special Status Plants

Eleven special status plant species, including one threatened and/or endangered species, were identified in the literature review as occurring or potentially occurring in the project vicinity (Table 1). However, some of these species do not occur on-site due to a lack of suitable habitat (e.g., fine sand), and will not be impacted by the project (Table 4). The Peirson’s milk-vetch (state endangered and federally threatened) requires fine sand, and thus will not be impacted by the project.

Other special status plant species (Rare/Sensitive species) have no potential for being impacted by the project, due to: (a) a lack of suitable habitat on-site (e.g., fine sand), or (b) occurring in habitat not affected by reduced sedimentation/siltation (e.g., desert scrub).

Special Status Natural Communities

Five special status natural communities were identified in the literature review as occurring or potentially occurring in the project vicinity (Table 1). However, some of these communities do not occur on-site, and will not be impacted by the project (Table 4). Southern willow scrub and wetlands (freshwater marsh, alkali marsh, etc.) occur in the project area, and may be negatively impacted by: (a) reduced sedimentation/siltation deposition at the delta, and (b) removal of sediment by continued dredging activities. Active Desert Dunes, Stabilized and Partially Stabilized Desert Dunes, and Desert Fan Palm Oasis occur near the project area, and will not be impacted by reduced sedimentation/siltation.

Impact Assessment of Project Alternatives

The proposed New River Sedimentation/Siltation TMDL (i.e., Preferred Alternative) has been the basis for all discussions in environmental documents, including this Natural Environment Study. The Preferred Alternative is a reasonable and feasible approach to decrease existing sediment loads to a level associated with acceptable health risks for biological and human communities. However, other alternatives exist, including a No Action Alternative, a Lower Numeric Target Alternative (Alternative 2), and an Increased Regulatory Oversight Alternative (Alternative 3). Each alternative to the proposed New River Sedimentation/Siltation TMDL is described briefly below, with an assessment of impacts on biological resources.

The No Action Alternative is defined as no Regional Board adoption of a TMDL and corresponding Implementation Plan. This means that excess sediment in the New River would continue to: (a) violate Basin Plan water quality objectives, (b) impair beneficial uses, and (c) place the health of biological and human communities at unacceptable risk. This alternative does not comply with the Clean Water Act or meet the purpose of the proposed action, which is to eliminate ongoing water quality violations. It is precisely because of these problems that law dictates a regulatory action. This alternative would result in adverse impacts to biological resources, and is not acceptable.

The Lower Numeric Target Alternative (Alternative 2) is defined as the proposed project with a lower numeric target of 80 mg/L TSS concentration proposed by the National Academy of Sciences as being moderately protective of aquatic communities (National Academy of Sciences 1972). Meeting this lower numeric target would require a lower total load, and thus lower load allocations to agricultural dischargers in the watershed. This target corresponds to about a 34% reduction of the current suspended solids concentration of the New River at its outlet (306 mg/L). This alternative would result in similar impacts to biological resources as the proposed project (Preferred Alternative), but the economic impacts to agriculture would be much greater as it would require the implementation of the most expensive BMPs.

The Increased Regulatory Oversight Alternative (Alternative 3) is defined as the proposed project with an Implementation Plan of greater regulatory oversight, including the adoption of conditional waivers, general permits, effluent limitations for the Imperial Irrigation District, and/or effluent limitations for individual responsible parties. This alternative would result in similar impacts to biological resources as the proposed project (Preferred Alternative), but could be unnecessarily burdensome on the regulated community, and unnecessarily exhaustive of limited Regional Board staff resources.

FEDERAL AND STATE SPECIAL LAWS

The Federal Endangered Species Act of 1973 (16 U.S.C. 1531-1543) provides for the conservation of endangered and threatened species and the ecosystems upon which they depend. Section 7 of the Act requires Federal agencies to ensure that actions they authorize, fund or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The U.S. Fish and Wildlife Service administers the federal program.

The California Endangered Species Act (California Department of Fish and Game Code 2080) requires state lead agencies to consult with the Department of Fish and Game during the CEQA process to avoid jeopardy to threatened or endangered species. The California Department of Fish and Game, and County Agricultural Commissioners, administer the state program.

The California Environmental Quality Act (CEQA) requires identification of environmental effects due to proposed projects. Significant effects are to be mitigated by avoidance, minimization, rectification, or compensation whenever possible. Effects to all state and federally listed species are considered significant under CEQA.

The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711) is an international treaty that makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10. This includes feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The MBTA requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (1 February to 31 August, annually) to avoid nest abandonment and/or loss of eggs or young. The loss of habitat upon which the birds depend could constitute a violation of the MBTA.

LOCAL GUIDING PRINCIPLES

The Salton Sea Authority is a state agency formed in 1993 that develops programs to continue beneficial use of the Salton Sea, in cooperation with state agencies, federal agencies, and Mexico. (“Beneficial use” is defined as a depository for agricultural drainage, storm water, and wastewater flows; protection of endangered species, fisheries, and waterfowl; and recreation.) The Authority functions under a Joint Powers Agreement between the Coachella Valley Water District, Imperial Irrigation District, Imperial County, and Riverside County.

MITIGATION MEASURES

At present, IID dredging operations that directly affect the Salton Sea delta occur within the drainage of the New River from the outlet at the confluence of the New River with the Salton Sea to approximately one-half-mile upstream of the outlet. In this one-half-mile distance, dredging is performed as needed about every four or five years, and removes approximately one foot of sediment from the toe of the bank out as far as a long-reach excavator can safely operate (about 35 feet). The reduction of silt resulting from this proposed TMDL, coupled with the current IID dredging activities in the New River delta area, could result in a significant decrease in the deposition of sediment/silt near the Salton Sea delta.

This loss of sediment/silt could result in loss of habitat utilized by wildlife, including state and federally listed threatened and endangered species, and loss of special status natural communities. Reduction of dredging, as well as timing of dredging, in the delta region would minimize impacts on the species and natural communities of concern. Also, it would mitigate on-going violations of the 5 mg/L dissolved oxygen (DO) WQO for the river. Dredging along the Salton Sea delta should be minimized and conducted outside of the nesting season (i.e., from approximately September-February) to reduce the likelihood of indirect impacts (e.g., noise) to special status wildlife species.

To reduce the effects of implementing this silt reduction TMDL to a less than significant impact on biological resources, staff is recommending that the Regional Board require IID to:

- (a) submit a technical report, pursuant to Section 13267 of the California Water Code, describing the measures it proposes to take (e.g. decrease dredging), along with a monitoring plan, to ensure that its overall dredging operations in the New River Watershed do not result in the loss of special status species or natural communities,
- (b) mitigate DO violations

REFERENCES

References Cited

- Bennett, J. 1998. Biological Effects of Selenium and Other Contaminants Associated with Irrigation Drainage in the Salton Sea Area, California 1992-1994. U.S. Department of Interior National Irrigation Water Quality Program Information Report No. 4. U.S. Department of the Interior, National Irrigation Water Quality Program, Washington, D.C.
- California Department of Fish and Game. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. State of California Resources Agency. Sacramento, CA
- California Department of Fish and Game. 1991. A Distribution Survey of Desert Pupfish (Cyprinodon macularius) Around the Salton Sea, California. Final Report for Section 6 Project No. EF90XII-1.
- California Department of Fish and Game, Natural Diversity Database. January, 2001. Special Animals. 52 pp. Sacramento, CA
- California Department of Fish and Game, Natural Diversity Database. July, 2001. Special Vascular Plants, Bryophytes, and Lichens List. Biannual publication, Mimeo. 141 pp. Sacramento, CA
- California Department of Fish and Game, Natural Diversity Database. 2002. Database Information for Kane Spring NE, Westmorland, Brawley NW, Brawley, Seeley, Mount Signal, Heber, Holtville West, and Calexico Quadrangles. February. Sacramento, CA
- California Department of Food and Agriculture. 1998. California's Top 10 Agricultural Counties. http://www.cdfa.ca.gov/agfacts/1998_top_10_ag_counties.html
- California Regional Water Quality Control Board. 1994. Water Quality Control Plan: Colorado River Basin – Region 7. California Regional Water Quality Control Board, Colorado River Basin Region. Palm Desert, CA
- Cohen, M., J. Morrison, and E. Glenn. 1999. Haven or Hazard: The Ecology and Future of the Salton Sea. Pacific Institute for Studies in Development, Environment, and Security, Oakland, CA
- Gruenberg, A.P. 1998. A Historical Overview of New River Pollution in Mexico. California Regional Water Quality Control Board, Colorado River Basin Region. Palm Desert, CA
- Imperial County. 1998. Imperial County General Plan. CD-ROM Disc. Imperial County Planning Department. El Centro, CA
- Imperial County Agricultural Commissioner. 1995. Imperial County Agricultural Crop and Livestock Report for 1994. Imperial County Agricultural Commissioner. El Centro, CA
- Imperial County Agricultural Commissioner. 1996. Imperial County Agricultural Crop and Livestock Report for 1995. Imperial County Agricultural Commissioner. El Centro, CA
- Imperial County Agricultural Commissioner. 1997. Imperial County Agricultural Crop and
New River Sedimentation/Siltation TMDL

- Livestock Report for 1996. Imperial County Agricultural Commissioner. El Centro, CA
- Imperial County Agricultural Commissioner. 1998. Imperial County Agricultural Crop and Livestock Report for 1997. Imperial County Agricultural Commissioner. El Centro, CA
- Imperial County Agricultural Commissioner. 1999. Imperial County Agricultural Crop and Livestock Report for 1998. Imperial County Agricultural Commissioner. El Centro, CA
- Imperial County Agricultural Commissioner. 2000. Imperial County Agricultural Crop and Livestock Report for 1999. Imperial County Agricultural Commissioner. El Centro, CA
- Imperial County Agricultural Commissioner. 2001. Imperial County Agricultural Crop and Livestock Report for 2000. Imperial County Agricultural Commissioner. El Centro, CA
- Imperial Irrigation District. 1994. Final Environmental Impact Report for Modified East Lowline and Trifolium Interceptors and Completion Projects. Imperial Irrigation District. Imperial, CA
- Imperial Irrigation District. 1998. Fact Sheet: Imperial Valley Agricultural 1997. Imperial Irrigation District. Imperial, CA
- Imperial Irrigation District. 1999. Annual Inventory of Areas Receiving Water Years 1998, 1997, 1996. Imperial Irrigation District, Imperial, California.
- Keeney, S. 2000. California Department of Fish and Game. Written communication from Sharon Keeney (Fisheries Biologist, CDFG) to the California Regional Water Quality Control Board) on April 17, 2000
- Montgomery Consulting Engineers, Inc. 1987. New River Pollution Abatement Report Recommended Projects for California Regional Water Quality Control Board Colorado River Basin – Region 7. December.
- National Academy of Sciences, National Academy of Engineering. 1972. Water Quality Basin – Criteria, 1972. U.S. Government Printing Office, Washington D.C.
- Salton Sea Authority. 1999. The Desert Pupfish of the Salton Sea: A Synthesis. Salton Sea Database Program. <http://cem.uor.edu/salton/recon/pupfishSynthesisReport.html>
- Salton Sea Authority and United States Bureau of Reclamation. 2000. Salton Sea Restoration Project Draft Environmental Impact Statement/Environmental Impact Report. Salton Sea Authority. La Quinta, CA
- Setmire, J.G., J.C. Wolfe, and R.K. Stroud. 1990. Reconnaissance Investigation of Water Quality, Bottom Sediment, and Biota Associated with Irrigation Drainage in the Salton Sea Area, California, 1986-87. U.S. Geological Survey Water-Resources Investigations Report 89-4102. U.S. Geological Survey. Sacramento, CA
- State Water Resources Control Board. 1978-1995. California Toxic Substances Monitoring Program. State Water Resources Control Board. Sacramento, CA
- Tetra Tech, Inc. 1999. Salton Sea Restoration Project Environmental Impact Statement/Environmental Impact Report, Administrative Draft. Prepared for Salton Sea Authority and

- U.S. Department of Interior and Bureau of Reclamation. November 1999. La Quinta, CA
- United States Fish and Wildlife Service, Salton Sea National Wildlife Refuge. 1997a. Salton Sea National Wildlife Refuge: Watchable Wildlife. Salton Sea National Wildlife Refuge. Calipatria, CA
- United States Fish and Wildlife Service, Salton Sea National Wildlife Refuge. 1997b. Wildlife Use of Agricultural Drains in the Imperial Valley, California.

References Relied Upon

- Burt, W.H. and Grossenheider. 1976. A Field Guide to the Mammals. Houghton Mifflin. Boston, MA
- California Department of Fish and Game. 2000. The Status of Rare, Threatened, and Endangered Animals and Plants of California 2000. State of California Resources Agency. Sacramento, CA
- California Department of Fish and Game. 2001. California Wildlife Habitat Relationships System website. <http://www.dfg.ca.gov/whdab>
- California Department of Fish and Game, Natural Diversity Database. 2002. Database Information for *Oliarces clara*. February. Sacramento, CA
- Coachella Valley Association of Governments. 2002. Coachella Valley Multiple Species Habitat Conservation Plan website. <http://www.co.riverside.ca.us/cvag/mshcp>
- Lucas, Elizabeth, Mark A. Pavelka, and Clark S. Winchell. 1999. Planning Aid Report, Salton Sea Restoration Project, Imperial and Riverside Counties, California. Prepared for the Bureau of Reclamation, Boulder City, NV. U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, Carlsbad, CA
- MacMahon, James A. 1997. National Audubon Society Nature Guides : Deserts. Alfred A. Knopf. New York, NY
- Mooney, Brian F. Associates. 1993. Draft Environmental Impact Report for the County of Imperial General Plan (SCH #93011023). Prepared for the County of Imperial Planning Department. January 1993. El Centro, CA
- National Geographic Society. 1987. Field Guide to the Birds of North America. 2nd ed. The National Geographic Society. Washington, D.C.
- Stebbins, Robert C. 1985. Peterson Field Guides: Western Reptiles and Amphibians. Houghton Mifflin Company. Boston, MA